TEACHING IN THE 21ST CENTURY- SKILLS AND KNOWLEDGE

Ashish Mathur[1]

Navin Mathur[2]

"Those who invest in creativity and innovation will be more competitive than those who do not." Ján Fígel (Education Commissioner)

Abstract: Universities are learning human systems. Knowledge and intellectual capital represent our national wealth. For a university to build knowledge architecture, it has to firstly build and manage the inventory of people, systems and decisions. Knowledge technologies must be incorporated to reengineer the entire business process. The reorientation of skills and resources is necessary to create better combinations of inorganic growth of the university. In today's era, we need universities where students have ingrained commitment to improve their capacity to create and innovate ideas respond to uncertainty, to challenges in the market place and to adjust to the change in general. The universities, as a group of people have to continuously enhance their capacity to design what they want to create. The paper builds an insight to create university learning system that has an ingrained philosophy for anticipating reacting and responding to change complexity and uncertainty.

Keywords: Knowledge, Commitment, Innovation, Change

Introduction

The university education landscape is changing rapidly. The competitive environment is no longer linear or predictable. Survival and success depends entirely on the education system's ability to adjust to the dynamics of business environment. Building knowledge architecture in any university is another form of reengineering. Reengineering is a process of introducing radical changes in the university process to improve efficiency. The emphasis is on cost reduction and making use of the existing operations. Building the knowledge architecture is an ongoing renewal of university process to learn in advance about the company's future opportunities and contingencies. The concentration is on value added education to increase the student satisfaction. The activities that demand innovation and creativity should be ingrained in the day-to-day process of the business. Technology plays a critical role to process information at an electronic speed.

Education develops the intellect; and the intellect distinguishes man from other creatures. Education enables man to harness nature and utilize his resources for the well-being and improvement of his life. The key for the betterment and completeness of modern living is education. Nevertheless, ' Man cannot live by bread alone '. Man, after all, is also composed of intellect and soul. Therefore, education in general, and higher education in particular, must aim to provide, beyond the physical, food for the intellect and soul. That education which ignores man's intrinsic nature, and neglects his intellect and reasoning power cannot be considered true education. Quality of higher education is a multi-dimensional concept. The effectiveness of the education system depends on its ability to transmit the knowledge and skill; the authenticity, content, coverage and depth of information availability of reading/teaching materials determines the quality standards. Good quality education is associated with high ethical standards. Education imparted with moral values develops the soul of the society. This paper discusses in details how information technology can be applied to enhance the quality of higher education at affordable cost. It also discusses the various ethical parameters associated with the higher education and their impact.

To conceive of knowledge as a collection of information seems to rob the concept of its life. Knowledge resides in the user and not in the collection. It is how the user reacts to a collection of information that matters (Churchman 1971) Boland gave meaning to knowledge and defined knowledge as unproblematic, predefined and prepackaged, they ignore the human dimension of organizational knowledge creation (Boland1987) In 1995 Gill reinforced the view in a different way. He stated that the prepackaged interpretation works against the generation of multiple and contradictory viewpoints that are necessary for meeting the challenges posed by wicked environments. They may even hamper the firm's learning and adaptive capabilities. (Gill) Real knowledge continues to be held by people (Berry2000) Despite the advancement of technology, one limitation remains, the ability of technology to support the use of tacit knowledge in face to face meetings and direct interaction (Marwick 2001) It should be noted that in today's internet economy, a company's success depends less on resources within its walls and more on its relationships with suppliers, vendors and customers. Effective management of the company's product traffic is marshalling the resources of its employees in line with those of the other companies. In this respect, relationship become assets just as the company builds information knowledge (Tapscott 2001) Successful knowledge management initiatives experts say focus first on people, business process and company culture (Rob Drew) Malthora emphasized the human nature of knowledge creation in an environment chartered by discontinuous change. (Malathora 2001) Fostering an atmosphere in which trust and respect thrive, and flexibility and innovation flourish, pays off in most settings, even the

[1] Faculty Department of Management Studies, Jai Narain Vyas University, Jodhpur, India
[2] Professor, Vice Chancellor, Jai Narain Vyas University, Jodhpur, India

most deadline driven. When managers empower, rather than control, when they ask right questions, rather than provide right answers, and when they focus on flexibility, rather than insist on adherence, they move to a higher form of execution. Moreover, when people know their ideas are welcome, they will offer innovative ways to lower costs and improve quality thus laying a more solid foundation for their organization success. (Amy C. Edmondson)With the rise of knowledge-based organizations in the information age, the old model no longer works for number of reasons. Performance is increasingly determined by factors that cannot be overseen: intelligent experimentation, interpersonal skills and resilience in the face of adversity. Nowadays, higher education is being driven towards commercial competition imposed by economic forces resulting from the development of global education markets and the reduction of governmental funds, forcing colleges and universities to seek other sources of financing. Higher education institutions had to be concerned with not only what the society values in the skills and abilities of their graduates (Ginsberg, 1991), but also how their students feel about their educational experience. These new perspectives call attention to the management processes within the institutions as an alternative to the traditional areas of academic standards, accreditation and performance indicators of teaching and research. There are a number of problems in developing performance indicators in higher education. One such problem is that performance indicators tend to become measures of activity rather than true measures of the quality of student's educational service. These performance indicators may have something to do with the provision of higher education, but they certainly fail to measure the quality of education provided in any comprehensive way (Berg, 2005) the student satisfaction can be divided into two loosely bound categories: (a) assessing teaching and learning; (b) assessing total student experience. Quality in higher Education is about efficiency, high standards, excellence, value for money, fitness for purpose and/or customer focused (Watty, 2006). The E-business is on knowledge transfer and knowledge sharing. It means connecting critical business systems and even education systems directly to critical constituencies-customers, vendors, and suppliers- via the Internet, extranets, and intranets. The technology-based environment provides electronic information to boost performance and create value by forming new relationships among businesses, education systems and customers. E-business is more than a Web site, in that it affects all aspects of business, from strategy and process to trading partners and the ultimate consumer. It combines the resources of traditional knowledge-based systems with the global reach of the Web. From a knowledge management viewpoint, e-business enables learning organizations to accomplish the following goals:

1. Create new products or services and, consequently, new market knowledge.
2. Build customer loyalty through knowledge exchange and knowledge sharing.
3. Enrich human capital by more direct and immediate knowledge transfer.
4. Make use of existing technologies for research and development and creation of new knowledge for new and more advanced products and services.
5. Achieve market leadership and competitive advantage.

Domains of Knowledge Architecture: Learning and Relations

Competition has increasingly become a race to the market with new products. The radical product differentiation is pulled by increasing prosperity, which yields great verity of wants. It is pushed by technological opportunities offered by the act and by the need to differentiate products in order to scale from increased competition, resulting from lower transaction costs and globalization. There is an increasing speed of innovation and structural change in markets due to globalization and in technologies and science in particular information and communication technology but also in biotechnology and new materials under these conditions. Firms have to learn and innovate at a higher pace and to have a chance of winning races to markets, they have to focus on core competencies, this entails that for other complementary competencies they require collaborative relations with other forum increasingly alliances are to be preferred over merger and acquisitions due to greater flexibility, manageability and variety of knowledge for the purpose of learning. This leads to an increased interest in the management of inter-firm relations and social capital thus exigencies of knowledge economy and network economy are connected in the link between management of learning and management of inter organization relation (Nootboom 1999) In the recent past, there has been a surge of interest in the competence or capability perspective of firms that can be traced back to the work of Penrose (1959) and Richardson in economics. On the other hand, competency view has to easily assume that capabilities are inferring firm specific and inimitable in the longer term and have neglected issues of imitation and spillover. This has also been pointed out by Williams (1999); the competence view has tended to neglect issue of governance. Issue of governance problems and dependence on collaboration has gained importance in the modern era of change to sustain for long term. There is a need to connect competence with governance. A critical question concerns the ability of firms to learn and to adapt and thereby escape from failure and inertia. This connects with the theories of organizational learning and business literature (Cohen and Sporoull 1996) In particular it relates to the question how firms can combine exploitation to survive in the short term and exploration to survive in the long term (March 1991 note boom 2000). Research of learning and innovation in and between organizations requires theory of structural change in socio-economic systems. One source of inspiration is evolutionary theory as in evolutionary economics (Nelson and Winter 1982); population ecology

in sociology (Hannna and freeman 1977, 1984) and evolutionary perspective in organization (Tushman and romaneli 1985) one issue concerns the unit of selection .Nelson and winter proposed the routines in firms as analogues of genes. How does this compare to other notion of units of process in firms such as standard operating procedures, performance programmes (March abd Simon), organizational scripts (Gioia and Poole 1984,) and organizational grammars (Pentland and Reuter 1994) It is useful up to a point to think of change in terms of the evolutionary trinity of variety creation, selection and retention. However in human systems variety creation entails innovation, which entails learning, discovery, institution and creativity. Retention entails communication. Selection is performed by markets and institutions, but those are in turn affected or even created by the units selected. Understanding of selection process requires further understanding of institutions, how they operate and how they develop change. This has been a long issue in both the old institutional economies (Veblen) and in sociology.

European personalities from different fields were as special ambassadors fourth Year of Creativity and Innovation. Ambassadors of the European Year were in a unanimous consensus on the fact that investment in education, skills and creative ability in Europe should be a priority for European governments and institutions and that would be a mistake to reduce basic research, development and education spending in the current crisis, because creativity and innovation are vital tools to face challenges, including demographic change, globalization, climate change and the transition towards a European knowledge-based society (Commission of the European Communities) Considering that it is possible to exist a significant period of time until a revival of the global economy, managers of companies can overcome the many difficulties of the current economic and financial crisis only together with their employees. One of these difficulties are even the lack of employees and of necessary qualifications or the concerns about the preservation of their employment. Feeling tense can be supported in the short term but on long term, it requires an exhausting effort. Fear frays us and undermines our health and welfare. When this happens, we are less able to hope (Shane Lopey, Gallup scientist). In the beginning of the crisis the management of fear should done be at the macro level and then it should be coordinated at the micro level, every day.

Current economic, social and organizational actual environment is characterized by turbulence and major changes that succeed quickly and at which the economic active people, institutions and organizations need to adapt quickly and efficiently. Thus, for reducing the state of tension, the concerns of employees on short terms, managers of companies should focus on the recognition of individual contribution; on promoting the welfare of each part and to keep the work team stable and as safe as possible. But on long term, as the current crisis effects are to be regarded as a crisis of confidence, managers must work to re-focus attention on some priority objectives, increase productivity and keep the work team running and if Possible not reduce the budget. When employees are attached to the workplace, the company objectives can be easier to be achieved. Therefore, the attachment to work place is vital in the economic and financial crisis, and the keys to growth are: establishing a close relationship. The change requires individuals and social groups to reconsider their choices and values, to imagine the evolution of strategy and defense, when it is appropriate (Adrian Dumitru Tantau) One of the most representative experts in the management of change, Kurt Lewin, considers change as a dynamic equilibrium of forces, some of which are pressuring for change, while others are resistance to change. The degree of acceptance of the change by individuals and communities is essential; by accepting the change it means not only recognizing that there is one, but the adapting response of the community to the change, with effect in the organization and the action mode (Smith, A. E., 1995).

In this context, the education system, especially at university and post-graduate level, has the strategic role to response to the challenges that come from the socio-economic environment and to prepare human resource flows connected to the international knowledge and information, which has the capacity to find effective economic and social solutions. This includes encouraging investment in developing an specific strong research sector to stimulate innovation, inventiveness and creativity; a high quality education – a special school and university curriculum for sustainable sectors with economic and social perspective potential; preparing specialists in holistic system for the reconstruction or construction of a sustainable economy; policy makers in preparing holistic system, specialists for a sustainable management of the economy, stimulating the adaptability capacity of individuals and integrating capacity of the positive valences of turmoil in the socio-economic environment, namely the crisis and overcoming resistance to change. Human capital is a primary resource to be used in managing global crisis, because it usable to make predictions and generate creative solutions to current problems, such as sources of development and economic recovery. In the present context, human resource is the most important long-term investment. It is important not to be affected the ability of people to find a job, being supported by policies to stimulate education and training, especially through advanced training and retraining. It is essential that people should have a job or that unemployed people should adapt and complete their training in order to enhance their chances to become active on labor market (Angela Gurria). The 21st century' organization is the "learning organization", integrating knowledge, experience, and developing its own human capital through continuous processes of learning and innovation. (Nicolescu O)

Once the company has accepted the need for change, it is then responsible for creating the appropriate environment for this change to occur in. Therefore a more flexible, organic structure must be formed. By organic, we mean a flatter structure that encourages innovations. The flatter structure also promotes passing of information between workers and so creating a more informed work force. It is necessary for management to take on a new philosophy; to encourage openness, reflectivity and accept error and uncertainty. The managers need to encourage, enthuse and co-ordinate the workers. Every change requires a certain degree of experimentation and endurance to face the adverse realities of the market. For learning to be more than a local affair, knowledge must be spread quickly and efficiently throughout the organization. Disseminating the value-added information in an efficient manner so that it is easily accessed by everyone within the organization.

One suggestion that stands out in the fore-coming age of information highway is putting the computer database on the internet system with limited employee-only access. Joint ventures provide precious opportunities of actively observing how others' systems are run. A learning culture rewards breakthroughs and initiative. The performance appraisal is meant to reflect the organization's commitment to create a learning culture, that is, to promote acquisition of new skills, teamwork as well as individual effort, openness and objectivity and continuous personal development. The fragile human ego yearns for acknowledgement from superiors and fellow colleagues for one's work, in some form of reward or, simply, feedback. Everyone wants to feel that he or she is doing a 'real' job and actively contributing to the proper functioning of the organization. No self-conscious member in the organization should be left feeling neglected. When individuals lose confidence or give up hope, the learning organization has failed.

Table 1: University Architecture to Foster Creativity

Inspiration	Involvement	Integrity	Integration	Innovation
To empower and raise the overall standards of the students.	Mobilization of Universities Consultants Counselors Coach Mentors Academicians	Social sensitivity and commitment towards our own responsibilities High governance Fairness Transparency Accountability	university system with technology	Employment creation programs basic research creation of psychological safety

Human Capital Management A Strategic Role for the Organizations

Even though employees account for as much as 80 percent of the worth of a corporation, it is difficult to measure and understand how they contribute to the bottom line. (Steve Bates) I can put value on everything in my office, my clock, my desk. but I can't put a value on people" says Jack Fitzenz, founder and chairman of Saratoga Institute ,a human capital management consulting firm in Santa Clara, California(Stephen Taub) executives are coming under pressure from boards, investors and analyze to show how they manage human capital in their companies (Stephen Taub) According to a recent HR Magazine article "A company's human capital asset is the collective sum of attributes, like experience, knowledge inventiveness, energy, and enthusiasm that its people choose to invest in their work (Leslie). The organizations have to change the philosophy to strategies human resource by measuring and managing the human capital.

Proposed Strategy to Improve the Quality Standards in the Universities

The education has to be ethical in order to build the nation and the society. The character and the destiny of any institution are built based on the foundation of the values realties to education. The orientation of exudation systemize to impart creativity, originality, expertise etc should be the basis of sound strategy to impart quality education in any system. The education of the 21st century can be as follows:

Table 2: The Comparison between Traditional Education System and Education System for The 21st Century

Traditional education system:	Education system for the 21st century:
Education was time based	Education focuses on student knowledge
Memorization of facts	Focus on knowledge
Lessons focus on lower level of knowledge, comprehension and application	Learning based on synthesis, analysis and evaluation
Text book driven	Research driven
Passive learning	Active learning
Fragmented curriculum	Integrated and inter-displinary syllabus
Print is primary vehicle	Computer , projects and multiple media required
Literacy is related to reading writing and math	Literacy is related to living and working in the global world
Education was value based	Education is ethical and sustainable

Richness in Knowledge and Skill: The quality in higher education relates to absorption of knowledge and generation of skill among the students. Knowledge and skill of teachers and experts have an effect on setting of norms. The expertise possess by the teachers helps in building the quality of knowledge level to build in the student personality. That is to say, that availability of high quality teaching aid and reading materials is essential for each participant in the educational process. Availability of high quality reading materials helps the teachers as well the students to have a better grasp of the subject matter, critical attitude, innovative tendencies and lucid communication skills.

Creativity: Inculcation of problem solving ability, creativity, innovativeness and such faculties make the third parameter of quality in education. A good quality of education would foster creativity and innovation in the material development of the proper growth of the students.

Modern Information Technology and Quality in Higher Education: The modernization of education is essential to remain connected to the developments happening in the digital world. The information technology can help in the enhancement of quality in higher education. A knowledge network should connect all universities and colleges for online open resources.

Conclusion

Like it or not, the years ahead will be an era of change and competition. The only thing one can predict about the future is change. The perfect architecture in organization is not an attainable goal; it is merely a desirable concept. Every company can continuously adapt and adjust to the changing environment. Knowledge building in Organization is just a means to a achieve business goal and it is created to improve productivity. In today's global marketplace, continuous change and adaptation is the only way to survive. Teaching is the highest form of understanding. Ethics in higher education entails effectiveness of transmitting knowledge and skill, the authenticity, content, coverage and depth of information, availability of reading/teaching materials, reduced obstacles to learning, applicability of knowledge in solving the real life problems, fruitfulness of knowledge in personal and social domains, convergence of content and variety of knowledge over space (countries and regions) and different sections of the people and realization of cost-effectiveness and administrative efficiency.

References

Adrian, Dumitru TANTAU. *Basis on Organizational Change*, http://www.ase.ro/biblioteca

Amy, C. Edmondson. (2008) The Competitive Imperatives of Learning, *Harvard Business Review*. July-August, 2008

Bates, Steve. (2002). Accounting for People: HR Executives and Academics Are Searching for the Holy Grail of HR- Measurements of the Value of Human Capital. *HR Magazine*, 47 (October- 2002) 30

Berg, G., A., *Total quality management in higher education*. In Howard, C., Boettcher, J.,

Boland, R. J. (1987). The Information of Information Systems, in R.J, Boland and R. Hirsche; Eds; *Critical Issues in Information Systems Research*. Chister Wiley; 1987.

Churchman, C.W. (1971). *The Design of Inquiring Systems*. New York: Basic Books; 1971.

Commission of the European Communities. (2009). *European Year of Creativity and Innovation*, 23 April- 2009

Davenport, T. H, & Laurence, Prushak. (1998). *Working Knowledge*. Boston, M.A Harvard Business School Press; 1998.

Gill, T. G. (1995). High Tech High Bound Case Studies of Information Technologies that Inhibit Organizational Learning. *Accounting Management and Information Technologies*, vol-5; No- 1; 1995. pp 41-60

Ginsberg, M. B. (1991). *Understanding educational reforms in global context: economy, Ideology and the state*. Garland, New York.

Govt. of India (2008). *National Knowledge Commission: Report to the Nation* 2007. Available at http://knowledgecommission.gov.in/reports/report07.asp

Gurria, Angela. (2009). People First: Together for Solving the Human Dimension of Crisis, Secretary General OECD, G-8, Social Summit, Roma, Italy, 30 March, 2009.

John, Berry. (2000). *Real Knowledge is held by People*. New York, CMP- Media Inc, 2000.

Leslie, A. (2008).Weatherly Human capital- the Elusive Asset. *HR Magazine*, 48 (March -2008) S1-S9

March. (1991). Exploration and Exploitation in Organizational Learning. *Organization Science*, 1991

Marwick, A. D. (2001). Knowledge Management Technology. *IBM System Journal*, vol- 40, No- 4, 2001. pp 814-830

Nicolescu, O. & Nicolescu, M. The firm and Knowledge Based Economy. ed *Economical*

Nonka, I. & Tekunchi, H. (1995) *The Knowledge Creating Company*. Oxford UK: Oxford University Press, 1995.

Nootboom. (1991). *Inter-firm Alliances: Analysis and Design*. London: Routledge, 1991

Penrose, E. (1959). *The Theory of the Growth of Firm*. New York: Wiley, 1959

Robb, Drew. (2001). Draft Your Dream Team. *Knowledge Management*, August 200.1 pp 44-50

Robert, Bolt. (1962). A *Man for all Seasons*. New York: Random House, 1962

Romanelli, E. & M. Y. Tushman. Organizational Transformation as Punctured Equilibrium: An Empirical Test. *Academy of Management Journal*, 375, 1141-66

Shruti, Date. (1999). Agencies Create CEO Posts to get in Government Computer. *News*, November- 8, 1999. pp12

Smith, A. E. (1995). The Flexible Firm: Strategy or Structure? *Research and Practice in Human Resource Management*, 3(1), 85-96.

Stephen, Taub. (2003). Majority of Finance Chiefs say They should Play Major Role in Human Capital Management few actually do. CFO.com, 2003

Synthesis, Flas J. (2001). Who is the CEO. *Knowledge Management*. May, 2001. 37-41

Taiwan, Amrit. (2000). T*he Knowledge Management Toolkit, Upper Saddle River*. Prentice Hall, 2000, p- 309

Tapscott, Don. (2001). *Growing up Digital: The Rise of Net Generation.* Boston, M.A Harvard Business School Press, 2001.

Watty, K. (2006). Want to Know About Quality in Higher Education? Ask an Academic. *Quality in Higher Education*, Vol. 12, No. 3, November 2006, and pp. 291-301.

Yogesh, Malthora. (2002). Knowledge Management in Inquiring organizations. www.Brint.com, Date Assessed, August, 2002.